Technology Transfer and Commercialization
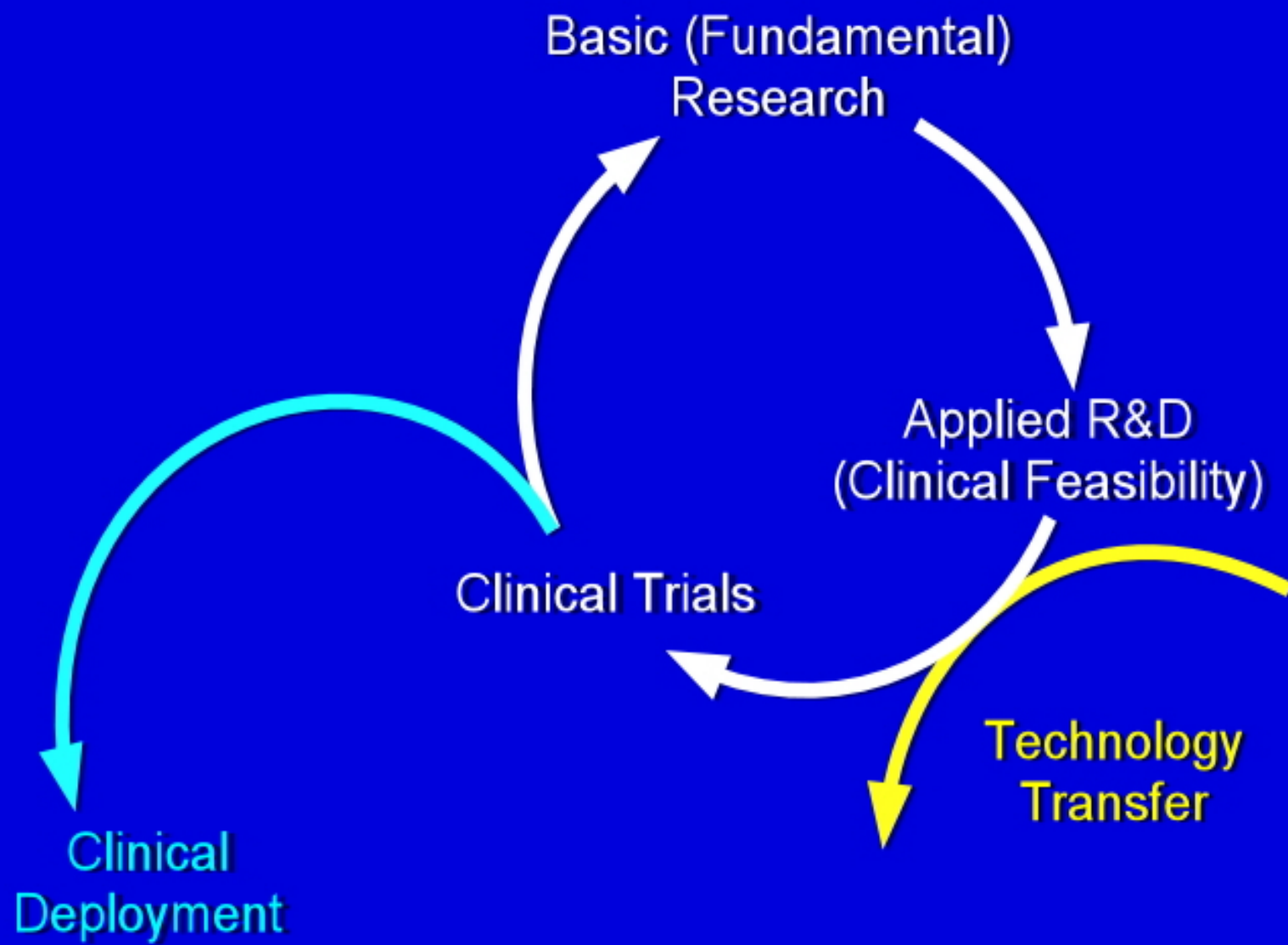
Research to Product
- A Grantee's Perspective -

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Stages of Development

- **Basic Research**
  - **Acquisition of knowledge**
  - **Technology development**
  - **Testing for safety**
- **Feasibility Studies**
  - **Testing for functionality, generally at single site**
- **Clinical Trials – evaluation at multiple sites**
- **Regulatory Approval**
- **…**
- **Production**
- **…**
- **Sales; Marketing; Distribution; Reimbursement**

The Valley of Death
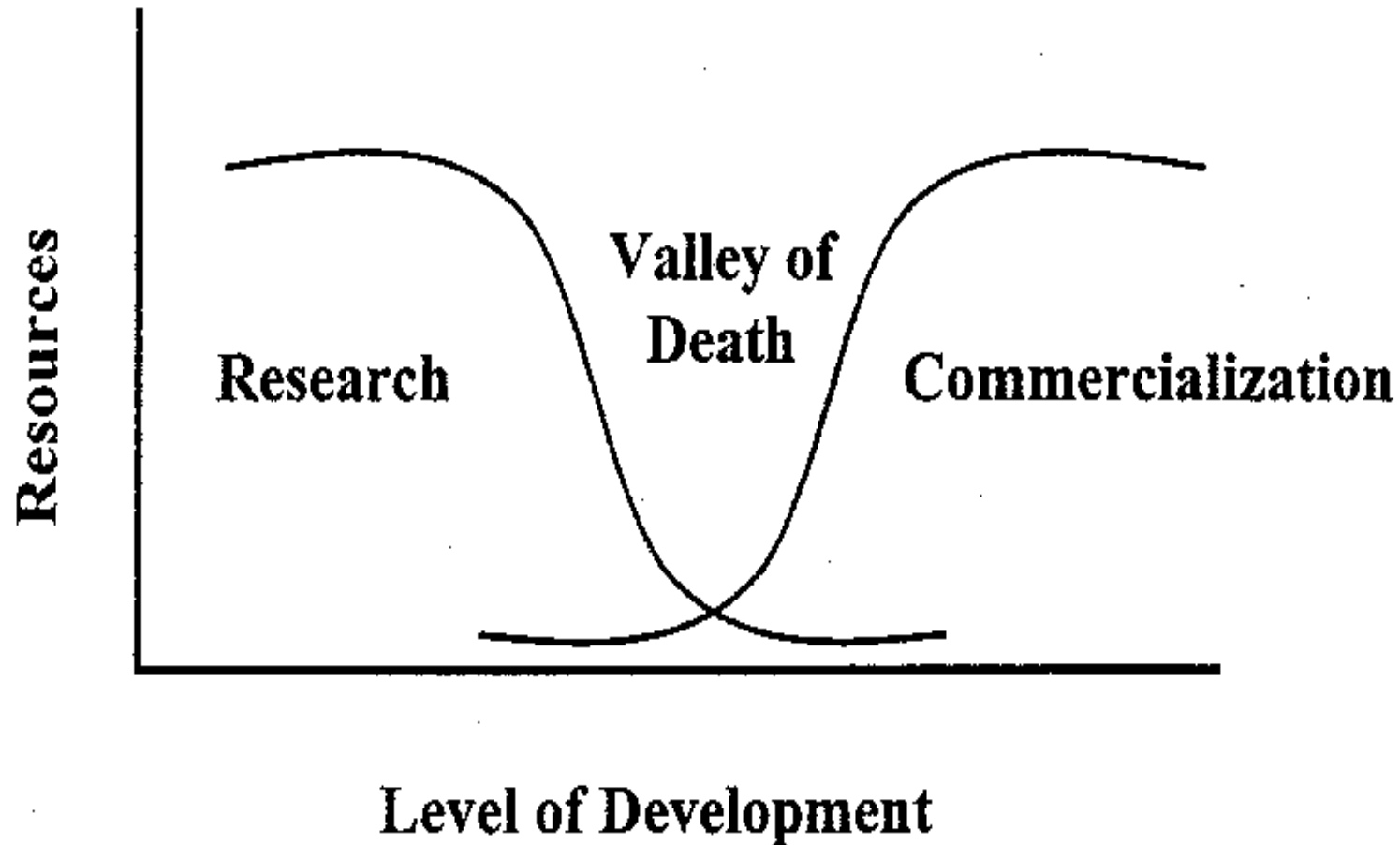
Why Transfer Technology?

- **Satisfaction of advancing health care (i.e. helping people)**
- **Satisfaction of seeing knowledge and/or technology in use**
- **May give you better ideas or more relevant ideas (work on the right problem)**
- **Positive impact on funding sources**
- **Possible new funding sources**
- **Expansion of the life of the academician**
- **Possible financial incentive**
- **Colleagues tell you that you should**

Some Questions to Ask re Technology Transfer - 1

- **What are my options**

- **Patenting**

- **How to license**

- **How to value the technology**

- **Legal & contractural issues**

- **How to form partnerships**

Some Questions to Ask re Technology Transfer - 2

- **Conflicts of interest**
- **Publication and academic freedom**
- **Alternative strategies for transfer**
- **Management issues**
- **Your role and participation**
- **Balance of expectations and obligations**
- **Many others…**

What is the Role of the Academic Researcher in Light of Corporate Involvement?

- **Embrace it**
  - **We have struggled a long time to legitimize the clinical opportunities provided by BME (we asked for it, and it's a measure of our success)**
- **Learn from it**
  - **Clinical needs**
  - **Industrial opportunities**
  - **…**
- **BUT - protect yourself and your findings**
- **Identify mutual advantages**

Role of the Researcher

- **Generates ideas (e.g. research findings, designs, etc.) - but these may not have an *immediate* role in products**

- **<u>But</u> they may be extrapolated into new areas (industry will have obtained complimentary vision of needs to those of the researcher)**

- **Need to understand the health care delivery system (what makes sense in new products)**

How is Technology Transferred?

- **Give it away (public disclosure)**
- **License it**
- **Start a new company – be entrepreneurial**

Some factors to consider in transferring technology

- Your own interest in shepherding the technology
- Your professional intentions (academia, industry…)
- Where you are in your career
- Conflicts of Interest (Real or Perceived)
- Your willingness to accept risk
- Balance between these factors

What are Risks of Being Entrepreneurial?

- **Questions of conflict of interest**
- **Questions of motivation by colleagues and/or institution**
- **Time commitment – how does it impact your other obligations**
- **Legal issues**

Learn to Speak Different Languages

- **Technical - with engineers**
- **Medical - with physicians**
- **Business - with hospital administrators and business**
- **Financial - with investors**

Sometimes Good Ideas are Abandoned - Why?

- **Insufficient knowledge exists to pursue**
- **Apparent critical impediment**
- **Technology is not available**
- **Discouraged by colleagues**
- **No apparent outlet (e.g. sales)**
- **Critics make progress "too difficult"**
- **Inadequate $$ to pursue**
- **Timing not right**
- **Fear of competitors**
- **...**

Lessons Learned

- **Technology transfer has value of making your concepts be realized in practice**
- **Technology transfer opens greater opportunities to learn from others (limitations, needs, etc.)**
- **Learn to manage relationships with new entities (business, investors, …)**
- **Learn to speak communicate in different terms – other than those trained scientifically**
- **Insure that you have adequate legal representation in your personal relationships**

Recommendations

- **Seek guidance from others who have done it or tried to**

- **Obtain legal advice**

- **Work with your institutional technology transfer office – BUT realize their limitations**

Encouragement

As you conduct your research…

Seek industrial opportunities to realize the potential that is generated by your research. There are many learning experiences that will be broadening and rewarding.